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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,645	07/12/2006	Yasuyuki Naito	P29282	2439

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EXAMINER	
TAN, VIBOL	
ART UNIT	PAPER NUMBER
2819	

NOTIFICATION DATE	DELIVERY MODE
05/06/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/567,645	NAITO ET AL.	
	Examiner	Art Unit	
	Vibol Tan	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,7-10 and 12-14* is/are rejected.

7)☒ Claim(s) *3,6 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/9/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 5 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen (U. S. PAT. 6,424,074).

In claim 1, Nguyen teaches all claimed features in Fig. 5a, an electromechanical filter comprising: a first member (resonator 1) physically changing (vibrating) as a result of input of a signal (Vi); and a second member (resonator 2), arranged spaced by a predetermined interval (by 19) from the first member, detecting physical change of the first member when a signal of a predetermined frequency (resonance frequency) is input to the first member.

In claim 2, Nguyen further teaches the electromechanical filter according to claim 1, wherein: the first member has a symmetrical structure with respect to a center axis of the first member (as seen in resonator 1), and oscillates as a result of input of a signal (Vi); and the second member (resonator 2) detects oscillation of the first member when a signal of a predetermined frequency is inputted to the first member (20).

In claim 4, Nguyen further teaches the electromechanical filter according to claim 1, further comprising: an input side electrode (20) connected to the first member causing the first member to be excited by inputting a signal (Vi) to the first member; and

an output side electrode (24) connected to the second member, outputting a signal of the same frequency as the signal inputted to the first member when the second member detects oscillation of the first member (inherent).

In claim 5, Nguyen further teaches the electromechanical filter according to claim 1, further equipped with an input side electrode (20) arranged spaced by a predetermined interval (gaps; col. 9, line 6) from the first member, causing the first member to be excited as a result of input of a signal (Vi), wherein the second member is an output side electrode outputting a signal of the same frequency as the signal inputted to the first member when the second member detects oscillation of the first member (inherent).

In claim 12, Nguyen further teaches the electromechanical filter according to claim 1, with physical change of the first member (resonator 1) comprising oscillation, and further comprising an adjustment section (19) causing the predetermined interval between the first member and the second member to change, and causing resonance frequency of the first member to change (inherent).

In claims13 and 14, Nguyen further teaches in Fig. 6, an electrical circuit (CHANNEL SELECTOR) including a filter bank employing the electromechanical filter (Fig. 5a) according to claim 1; wherein an electrical equipment (mobile phone) having the electrical circuit.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7-10 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nguyen in views of Hunt et al. (US 2002/0167374).

In claim 7, Nguyen teaches all claimed features the electromechanical filter according to claim 1; with the exception of teaching wherein at least the first member of the first member and second member is composed of a substance formed through self-assembly containing carbon nanotube, carbon nanohorn, or fullerenes, and the predetermined interval is a microscopic gap formed by self-assembly by at least the first member. However, Hunt et al. teaches in paragraph [0068], the self-assembly of carbon nanotubes.

Therefore; it would have been obvious to one ordinary skill in the art at the time of the invention was made to combine the teachings of Nguyen with the teachings of Hunt et al. in order to provide a micromechanical filter that utilizes carbon nanotube technology having reduced power and mass, while simultaneously having enhanced capabilities.

In claim 8, Nguyen teaches all claimed features the electromechanical filter according to claim 1; with the exception of teaching wherein at least the first member of the first member and the second member is composed through growth using catalyst material and is connected to an electrode section composed of electrode material containing the catalyst material. However, Hunt et al. teaches in Fig. 1 and paragraph [0058], to ensure proper growth…with a thin catalyst film…

Therefore; it would have been obvious to one ordinary skill in the art at the time of the invention was made to combine the teachings of Nguyen with the teachings of Hunt et al. in order to provide a micromechanical filter that utilizes carbon nanotube technology having reduced power and mass, while simultaneously having enhanced capabilities.

In claim 9, Nguyen teaches all claimed features the electromechanical filter according to claim 1; with the exception of teaching wherein, the first member and second member are constituted by a complex composition including substances ion-doped into a carbon nanotube and substances containing other atoms and molecules. However, Hunt et al. teaches in paragraph [0008], self-assembly uses the principles of synthetic chemistry and biology to grow complex structures from a set of basic feedstocks.

Therefore; it would have been obvious to one ordinary skill in the art at the time of the invention was made to combine the teachings of Nguyen with the teachings of Hunt et al. in order to provide a micromechanical filter that utilizes carbon nanotube technology having reduced power and mass, while simultaneously having enhanced capabilities.

In claim 10, Nguyen teaches all claimed features the electromechanical filter according to claim 1; with the exception of teaching wherein the first member and the second member are formed artificially using fine-processing technology. However, Hunt et al. teaches in paragraph [0062] a chemical vapor deposition process (CVD) is utilized to grow… which meets the claimed language of fine-processing technology.

Therefore; it would have been obvious to one ordinary skill in the art at the time of the invention was made to combine the teachings of Nguyen with the teachings of Hunt et al. in order to provide a micromechanical filter that utilizes carbon nanotube technology having reduced power and mass, while simultaneously having enhanced capabilities.

5. Claims 3, 6 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vibol Tan whose telephone number is (571) 272-1811. The examiner can normally be reached on Monday-Friday (7:00 AM-4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on (571) 272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vibol Tan/
Primary Examiner, Art Unit 2819